REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Newly submitted Claims 15-25 are presently active in this case, original Claims 1-14 having been canceled by the present amendment.

In the outstanding Office Action, Claims 1-3, 5-10, 13 and 14 were rejected under 35 U.S.C. § 102 as anticipated by Pepi et al. (5,876,260). Claim 4 was rejected under 35 U.S.C. § 103 as being unpatentable over Pepi et al. in view of Chen (3,732,359). Claim 11 was rejected under 35 U.S.C. § 103 as being unpatentable over Pepi et al. in view of Browning (6,409,564) and Claim 12 was rejected under 35 U.S.C. § 103 as being unpatentable over Pepi et al.

In light of the several grounds for rejection, the original claims have been canceled and replaced by the new claims which are drafted to be more clearly patentably distinguishing over the prior art.

More particularly, as stated in new Claim 15, according to a first aspect of Applicants' invention there is provided a manufacturing method of a flat panel display, comprising at least one of (A) treating a faceplate and (B) treating a substrate; wherein the treating step (A) includes (a) a first radiating of electron beam onto the faceplate, while heating the faceplate in a vacuum atmosphere, (b) forming a getter film on the faceplate by means of vacuum deposition, and the treating step (B) includes a second irradiating of electron beam onto the substrate, while heating the substrate in a vacuum in atmosphere. The method of Claim 15 further includes steps (C) assembling the substrate and the faceplate at least one of which is irradiated with the electron beam, and (D) heating and joining the assembled substrate and faceplate.

In addition, the faceplate and the substrate can be accommodated in the same treatment vessel, both held at a predetermined spacing distance, and the electron beam irradiated onto the faceplate and the substrate alternately or simultaneously from two or more electron sources, as shown in the attached drawing.

According to a second aspect of Applicants' invention, to which Claim 25 is directed, there is provided a manufacturing equipment of a flat panel display, including (A) a baking and electron beam cleaning chamber, (B) a vapor deposition chamber in which a getter film is formed on the faceplate, (C) an assembly chamber, (D) a heat treatment chamber, and (E) a transferring means. The baking and electron beam cleaning chamber (A) includes (a) a treatment vessel in which at least one of a substrate and a faceplate is accommodated, (b) exhausting means for evacuating the inside of the treatment vessel to a vacuum atmosphere, (c) irradiating means for irradiating an electron beam, and (d) means for heating. The vapor deposition chamber (B) includes (a) a treatment vessel in which the faceplate onto which the electron beam is irradiated is accommodated, and (b) means for forming a getter film on the faceplate by means of the vacuum deposition. The assembly chamber (C) includes (a) a treatment vessel in which the substrate and a faceplate both held with a predetermined spacing distance is accommodated, and (b) exhausting means for evacuating the inside of the treatment vessel to a vacuum atmosphere. The heat treatment chamber (D) includes (a) a treatment vessel in which the assembled object is accommodated, and (b) means for heating and joining the substrate and the faceplate.

By virtue of the claimed invention, an entire surface of the substrate and/or of the faceplate may undergo thorough electron beam cleaning and surface adsorbed gas may be sufficiently released. In addition, a surface of the getter film (Ba) film formed in the vapor deposition may be suppressed from being contaminated by oxygen or carbon, and an active state can be maintained.

Accordingly, the inside of the envelope of the flat panel display can be made maintaining a high vacuum state, for instance, a degree of vacuum of from 10^{-7} to 10^{-8} Torr. The flat panel thus defined can have excellent emission properties over a long period.

In view of the newly submitted claims, it is respectfully submitted that the outstanding grounds for rejection are moot and that the newly submitted claims patentably define over the art of record.

Accordingly, in view of the present amendment, the present application is believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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